

Form PTO-1449 (modified)

Atty. Docket No.

AMBI:055US/MBW

Serial No.

09/613,535

List of Patents and Publications for Applicant's

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant

George L. Murphy, Robert A. Setterquist and Andrew D. Ellington

Filing Date:

July 10, 2000

Group:

Unknown

U.S. Patent Documents

See Page 1

Foreign Patent Documents

See Page 1

Other Art

See Page 1

U.S. Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date | Name | Class | Sub Class | Filing Date of App. |
|-------------|-----------|-----------------|----------|------------------------|-------|-----------|---------------------|
| as | A4 | 5,723,323 | 3/3/98 | Kauffman <i>et al.</i> | 435 | 172.3 | 12/2/94 |
| | A5 | 5,965,408 | 12/12/99 | Short | 435 | 91.1 | 7/9/96 |
| | A6 | 6,117,679 | 9/12/00 | Stemmer | 435 | 440 | 3/25/96 |
| | A7 | 6,132,970 | 10/17/00 | Stemmer | 435 | 6 | 6/19/98 |
| | A8 | 6,165,793 | 12/26/00 | Stemmer | 435 | 440 | 5/8/98 |
| | A9 | 6,177,263 B1 | 1/23/01 | Arnold <i>et al.</i> | 435 | 91.1 | 7/14/99 |
| as | A10 | 6,180,406 B1 | 1/30/01 | Stemmer | 435 | 440 | 6/17/98 |

Foreign Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date | Country | Class | Sub Class | Translation Yes/No |
|-------------|-----------|-----------------|------|---------|-------|-----------|--------------------|
| | | | | | | | |

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|----------|
| | | |

25041772.1

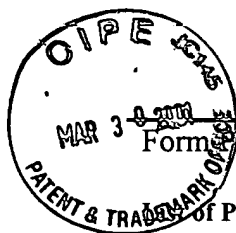
EXAMINER:

Alexander H. Smith

DATE CONSIDERED:

11/14/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

Office of Patents and Publications for Applicant's

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Atty. Docket No.

AMBI:055US/MBW

Serial No.

09/613,535

Applicant

George L. Murphy, Robert A. Setterquist and Andrew D. Ellington

Filing Date:

July 10, 2000

Group:

U.S. Patent Documents

See Page 1

Foreign Patent Documents

See Page 1

Other Art

See Page 1

U.S. Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date | Name | Class | Sub Class | Filing Date of App. |
|-------------|-----------|-----------------|----------|----------------------|-------|-----------|---------------------|
| AD | A1 | 5,965,408 | 10-12-99 | Short | 435 | 91.1 | 07-09-96 |
| | A2 | 6,159,687 | 12-12-00 | Vind | 435 | 6 | 03-18-98 |
| AD | A3 | 6,177,263 B1 | 01-23-01 | Arnold <i>et al.</i> | 435 | 91.1 | 07-14-99 |

Foreign Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date | Country | Class | Sub Class | Translation Yes/No |
|-------------|-----------|-----------------|----------|---------|-------|-----------|--------------------|
| AD | B1 | WO 98/05765 | 02-12-98 | PCT | | | |
| | B2 | WO 98/32845 | 07-30-98 | PCT | | | |
| | B3 | WO 98/41622 | 09-24-98 | PCT | | | |
| | B4 | WO 98/41623 | 09-24-98 | PCT | | | |
| | B5 | WO 98/42832 | 10-01-98 | PCT | | | |
| | B6 | WO 98/58080 | 12-23-98 | PCT | | | |
| | B7 | WO 99/15698 | 04-01-99 | PCT | | | |
| | B8 | WO 99/20768 | 04-29-99 | PCT | | | |
| | B9 | WO 99/29882 | 06-17-99 | PCT | | | |
| AD | B10 | WO 99/47536 | 09-23-99 | PCT | | | |

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|---|
| AD | C1 | Altschul <i>et al.</i> , "Basic Local Alignment Search Tool," <i>J. Mol. Biol.</i> 215:403-410, 1990. |
| | C2 | Ambrose <i>et al.</i> , "DNA Sequencing: Chemical Methods," 152:522-538, 1987. |
| AD | C3 | Arkin, <i>et al.</i> , "An algorithm for protein engineering: Simulations of recursive ensemble mutagenesis," <i>PNAS USA</i> 89:7811-7815, 1992. |

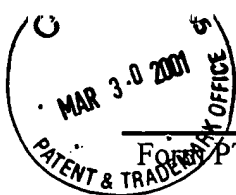
4963186.1

EXAMINER:

DATE CONSIDERED:



11/14/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



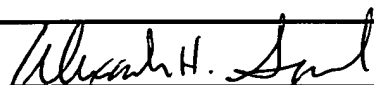
| | | | |
|---|--|--|--------------------------|
| PTO-1449 (modified) | | Atty. Docket No. AMBI:055US/MBW | Serial No. 09/613,535 |
| List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) | | Applicant George L. Murphy, Robert A. Setterquist and Andrew D. Ellington | |
| | | Filing Date: July 10, 2000 | Group: |
| U.S. Patent Documents See Page 1 | Foreign Patent Documents See Page 1 | Other Art See Page 1 | |

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|---|-----------|--|
|  | C4 | Barcak, et al., "A method for unidirectional deletion mutagenesis with application to nucleotide sequencing and preparation of gene fusions," <i>Gene</i> , 49:119-128, 1986. |
| | C5 | Breaker et al., "Self-Incorporation of Coenzymes by Ribozymes," <i>J. Mol. Evol.</i> , 40:551-558, 1995. |
| | C6 | Caldwell and Joyce, "Mutagenic PCR," <i>PCR Methods and Applications</i> , 3:S136-S140, 1994. |
| | C7 | Carbonelli et al., "A placid vector for isolation of strong promoters in <i>Eschirichia coli</i> ," <i>FEMS Microbiol Lett.</i> , 177:75-82, 1999. |
| | C8 | Chandler et al., "RNA splicing specificity determined by the coordinated action of RNA recognition motifs in SR proteins," <i>Proc Natl Acad Sci U S A.</i> , 94:3596-3601, 1997. |
| | C9 | Chang et al., "Evolution of a cytokine using DNA family shuffling," <i>Nature Biotechnology</i> , 17:793-797, 1999. |
| | C10 | Chapman and Szostak, "Isolation of a ribozyme with 5'-5' ligase activity," <i>Chem Biol.</i> 2:325-333, 1995. |
| | C11 | "Light based scissors cleave DNA," <i>Chemical and Engineering News</i> , Sept. 13, p 40, 1999. |
| | C12 | Chen and Okayama, "High-Efficiency Transformation of Mammalian Cells by Plasmid DNA," <i>Mol. Cell. Biol.</i> , 7:2745-2752, 1987. |
| | C13 | Chowrira et al., " <i>In Vitro</i> and <i>in Vivo</i> Comparison of Hammerhead, Hairpin, and Hepatitis Delta Virus Self-processing Ribozyme Cassettes," <i>J. Biol. Chem.</i> , 269:25856-25864, 1994. |
| | C14 | Coccea, "Duplication of a Region in the Multiple Cloning Site of a Plasmid Vector to Enhance Cloning-Mediated Addition of Restriction Sites to a DNA Fragment," <i>Biotechniques</i> , 23:814-816, 1997. |
| | C15 | Crameri et al., "DNA shuffling of a family of genes from diverse species accelerates directed evolution," <i>Nature</i> , 391:288-291, 1998. |
| | C16 | Crameri et al., "Improved Green Fluorescent Protein by Molecular Evolution Using DNA Shuffling," <i>Nature Biotechnology</i> , 14:315-319, 1996. |
| | C17 | <i>Current Protocols in Molecular Biology</i> . Ed. F. M. Ausubel et al., Volume 1, 1996. <i>Table of Contents</i> |
|  | C18 | Eun, "Enzymology Primer for Recombinant DNA Technology," <i>Academic Press</i> , 3:215-220, 1996. |

4963186.1

EXAMINER:



DATE CONSIDERED:

11/14/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

Atty. Docket No.
AMBI:055US/MBWSerial No.
09/613,535

List of Patents and Publications for Applicant's

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant

George L. Murphy, Robert A. Setterquist and Andrew D. Ellington

Filing Date:

July 10, 2000

Group:

U.S. Patent Documents
See Page 1Foreign Patent Documents
See Page 1Other Art
See Page 1

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|--|
| AS | C19 | Fechheimer et al., "Transfection of mammalian cells with plasmid DNA by scrape loading and sonication loading," <i>Proc. Natl. Acad. Sci., USA</i> 84:8463-8467, 1987. |
| | C20 | Foder et al., "Light-Directed, Spatially Addressable Parallel Chemical Synthesis," <i>Science</i> , 251:767-773, 1991. |
| | C21 | Fraley and Fomari Kaplan, "Entrapment of a bacterial plasmid in phospholipid vesicles: Potention for gene transfer," <i>Proc. Nat'l. Acad. Sci. USA</i> , 76:3348-3352, 1979. |
| | C22 | Gish and Eckstein, "DNA and RNA sequencing utilizing <u>phosphorothioate</u> chemistry," <i>NAR Symp. Ser.</i> , 8:253-256, 1987. |
| | C23 | Gopal, "Gene Transfer Method for Transicnt Gene Expression, Stable Transformation, and Cotransformation of Suspension Cell Cultures," <i>Mol. Cell. Biol.</i> , 5:1188-1190, 1985. |
| | C24 | Graham and Van Der Eb, "A New Technique for the Assay of Infectivity of Human Adenovirus 5 DNA," <i>Virology</i> , 52:456-467, 1973. |
| | C25 | Kaeppler et al., "Silicon carbide fiber-mediated DNA delivery into plant cells," <i>Plant Cell Reports</i> , 9: 415-418, 1990. |
| | C26 | Kaneda et al., "Increased Expression of DNA Cointroduced with Nuclear Protein in Adult Rat Liver," <i>Science</i> , 243:375-378, 1989. |
| | C27 | Kato et al., "Expression of Hepatitis B Virus Surface Antigen in Adult Rat Liver," <i>J. Biol. Chem.</i> , 266:3361-3364, 1991. |
| | C28 | Labeit et al., "A New Method of DNA Sequencing Using Deoxynucleoside α -Thiotriphosphates," <i>DNA</i> 5:173-177, 1986. |
| | C29 | Lee et al., "Ribozyme-catalyzed tRNA aminoacylation," <i>Nat Struct Biol.</i> , 7:28-33, 2000. |
| | C30 | Leung et al., "A Method for Random Mutagenesis of a Defined DNA Segment Using a Modified Polymerase Chain Reaction," <i>Technique</i> , 1:11-15, 1989. |
| | C31 | Lieber and Strauss, "Selection of Efficient Cleavage Sites in Target RNAs by Using a Ribozyme Expression Library," <i>Mol. Cell. Biol.</i> , 15:540-551, 1995. |
| AS | C32 | Lohse and Szostak, "Ribozyme-catalysed amino-acid transfer reactions," <i>Nature</i> . 30:381:442-444, 1996. |

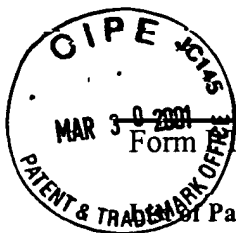
4963186.1

EXAMINER:

DATE CONSIDERED:

11/14/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



| | | | |
|---|--|--|--------------------------|
| Form PTO-1449 (modified) | | Atty. Docket No. AMBI:055US/MBW | Serial No. 09/613,535 |
| INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) | | Applicant George L. Murphy, Robert A. Setterquist and Andrew D. Ellington | |
| | | Filing Date: July 10, 2000 | Group: |
| U.S. Patent Documents See Page 1 | Foreign Patent Documents See Page 1 | Other Art See Page 1 | |

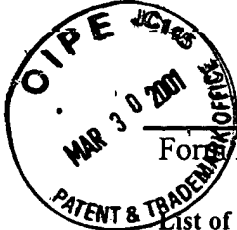
Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|---|
| ad | C33 | Longo et al., "Use of uracil DNA glycosylase to control carry-over contamination in polymerase chain reactions," <i>Gene</i> , 93:125-128, 1990. |
| | C34 | Lorsch and Szostak, "Kinetic and Thermodynamic Characterization of the Reaction Catalyzed by a Polynucleotide Kinase Ribozyme," <i>Biochemistry</i> , 34:15315-15327, 1995. |
| | C35 | Macejak and Sarnow, "Internal initiation of translation mediated by the 5' leader of a cellular mRNA," <i>Nature</i> , 353:90-94, 1990. |
| | C36 | Maxam and Gilbert, "Sequencing End-Labeled DNA with Base-Specific Chemical Cleavages," <i>Methods Enzymology</i> , 65:499-560, 1980. |
| | C37 | Messing and Vieira, "A new pair of M13 vectors either DNA strand of double-digest restriction fragments," <i>Gene</i> , 19:269-276, 1982. |
| | C38 | Moore and Arnold, "Directed evolution of a <i>para</i> -nitrobenzyl esterase for aqueous-organic solvents," <i>Nature Biotechnology</i> , 14:458-467, 1996. |
| | C39 | Moore et al., "Strategies for the <i>in vitro</i> Evolution of Protein Function: Enzyme Evolution by Random Recombination of Improved Sequences," <i>J. Molecular Biol.</i> , 272:336-347, 1997. |
| | C40 | Nicolau and Sene, "Liposome-Mediated DNA Transfer in Eukaryotic Cells," <i>Biochem. Biophys. Acta</i> , 721:185-190, 1982. |
| | C41 | Nicolau et al., "Liposomes as Carriers for <i>in Vivo</i> Gene Transfer and Expression," 149:157-176, 1987. |
| | C42 | Nixon et al., "Hybrid enzymes: manipulating enzyme design," <i>Trends in Biotech.</i> , 16:258-264, 1989. |
| | C43 | Ohuchi et al., " <i>In vitro</i> method for the generation of protein libraries using PCR amplification of a single DNA molecule and coupled transcription/translation," <i>NAR</i> , 26:4339-4346, 1998. |
| | C44 | Oliphant, et al., "Cloning of random-sequence oligodeoxynucleotides," <i>Gene</i> , 44:177-183, 1986. |
| | C45 | Ostermeier et al., "A combinatorial approach to hybrid enzymes independent of DNA homology," <i>Nature Biotechnology</i> , 17:1205-1209, 1999. |
| ad | C46 | Ostermeier et al., "Combinatorial protein engineering by incremental truncation," <i>PNAS</i> , 96:3562-3567, 1999. |

4963186.1

EXAMINER:**DATE CONSIDERED:**

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

Atty. Docket No.

AMBI:055US/MBW

Serial No.

09/613,535

List of Patents and Publications for Applicant's

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant

George L. Murphy, Robert A. Setterquist and Andrew D. Ellington

Filing Date:

July 10, 2000

Group:

U.S. Patent Documents

See Page 1

Foreign Patent Documents

See Page 1

Other Art

See Page 1

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|---|
| AL | C47 | Pelletier and Sonenberg, "Internal initiation of translation of eukaryotic mRNA directed by a sequence derived from poliovirus RNA," <i>Nature</i> , 334:320-325, 1988. |
| | C48 | Pompon & Nicolas, "Protein engineering by cDNA recombination in yeasts: shuffling of mammalian cytochrome P-450 functions," <i>Gene</i> , 83:15-24, 1989. |
| | C49 | Pompon et al., "Protein engineering by cDNA recombination in yeasts: shuffling of mammalian cytochrome P-450 functions," <i>Gene</i> , 83:15-24, 1989. |
| | C50 | Potrykus et al., "Direct gene transfer to cells of a graminaceous monocot," <i>Mol. Gen. Genet.</i> , 199:183-188, 1985. |
| | C51 | Rippe et al., "DNA-Mediated Gene Transfer into Adult Rat Hepatocytes in Primary Culture," <i>Mol. Cell Biol.</i> , 10:689-695, 1990. |
| | C52 | Sambrook et al., "Extraction of RNA with Guanidinium Thiocyanate Followed by Centrifugation in Cesium Chloride Solutions," In: <i>Molecular Cloning: A Laboratory Manual</i> , Vol. 1, Cold Spring Harbor Laboratory Press, 7:7.19-17.29, 1989. |
| | C53 | Scheit, <i>Nucleotide Analogs</i> John Wiley & Sons, New York, 1980 |
| | C54 | Schulga et al., "An approach to construction of hybrid polypeptide molecules - homologue recombination method," <i>NAR</i> 22:3808-3810, 1994. |
| | C55 | Shao et al., "Random priming in vitro recombination: an effective tool for directed evolution," <i>NAR</i> 26:681-683, 1998. |
| | C56 | Skalski et al., "Removal of Anti-Human Immunodeficiency Virus 2', 3' Dideoxynucleoside Monophosphates from DNA by a Novel Human Cytosolic 3' → 5' Exonuclease," <i>Biochem. Pharmacol.</i> , 50:815-821, 1995. |
| | C57 | Stemmer, "Rapid evolution of a protein <i>in vitro</i> by DNA shuffling," <i>Nature</i> , 370:389-391, 1994. |
| | C58 | Stemmer, "DNA shuffling by random fragmentation and reassembly: <i>In vitro</i> recombination for molecular evolution," <i>PNAS</i> , 91:10747-10751, 1994. |
| | C59 | Vita, "Engineering novel proteins by transfer of active sites to natural scaffolds," <i>Current Opinion in Biotechnology</i> , 8:429-434, 1997. |
| AL | C60 | Weber et al., "Formation of genes coding for hybrid proteins by recombination between related, cloned genes in <i>E. coli</i> ," <i>NAR</i> , 11:5661-5669, 1983. |

4963186.1

EXAMINER:

DATE CONSIDERED:

11/12/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

Atty. Docket No.
AMBI:055US/MBWSerial No.
09/613,535

List of Patents and Publications for Applicant's

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Applicant
George L. Murphy, Robert A. Setterquist and Andrew D. EllingtonFiling Date:
July 10, 2000

Group:

U.S. Patent Documents
See Page 1Foreign Patent Documents
See Page 1Other Art
See Page 1

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|--|
| ad | C61 | Wilson C. and Szostak, "In vitro evolution of a self-alkylating ribozyme," <i>J.W. Nature</i> , 374:777-782, 1995. |
| | C62 | Wong et al., "Appearance of a β -lactamase activity in animal cells upon liposome-mediated gene transfer," <i>Gene</i> , 10:87-94, 1980. |
| | C63 | Zhao et al., "Optimization of DNA shuffline for high fidelity recombination," <i>NAR</i> , 25:1307-1308, 1997. |
| AS | C64 | Zhao et al., "Molecular evolution by staggered extension process (StEP) in Vitro recombination," <i>Nature Biotechnology</i> , 16:258-261, 1998. |

4963186.1

EXAMINER:

Alexander H. Smith

DATE CONSIDERED:

11/14/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.



Form PTO-1449 (modified)

Atty. Docket No.
AMBI:055USSerial No.
09/613,535

List of Patents and Publications for Applicant's

Applicant

George L. Murphy, Robert A. Setterquist and Andrew
D. Ellington

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Filing Date:
July 10, 2000Group:
1637U.S. Patent Documents
See Page 1Foreign Patent Documents
See Page 1Other Art
See Page 1

U.S. Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date | Name | Class | Sub Class | Filing Date of App. |
|-------------|-----------|-----------------|------|------|-------|-----------|---------------------|
| | | | | | | | |

Foreign Patent Documents

| Exam. Init. | Ref. Des. | Document Number | Date | Country | Class | Sub Class | Translation Yes/No |
|-------------|-----------|-----------------|---------------|---------|-------|-----------|--------------------|
| AS | B11 | WO 97/20078 | Jun. 5, 1997 | PCT | | | |
| | B12 | WO 98/01581 | Jan. 15, 1998 | PCT | | | |
| | B13 | WO 98/41653 | Sep. 24, 1998 | PCT | | | |
| | B14 | WO 98/42728 | Oct. 1, 1998 | PCT | | | |
| | B15 | WO 98/27230 | Jun. 25, 1998 | PCT | | | |
| | B16 | WO 00/42561 | Jul. 20, 2000 | PCT | | | |
| AS | B17 | FR 2 782 323 | Feb. 18, 2000 | France | | | |

Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

| Exam. Init. | Ref. Des. | Citation |
|-------------|-----------|----------|
| | | |

25204344.1

EXAMINER:

Alexandra H. Smith

DATE CONSIDERED:

11/14/02

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

RECEIVED

SEP 16 2002

TECH CENTER 1600/2900